

**ABSTRACT OF THE DISCLOSURE**

A method for scheduling production flow includes processing a plurality of manufactured items in a process flow. Item health metrics are determined for at least a subset of the plurality of manufactured items. Tool health metrics are determined for a plurality of tools in the process flow. The manufactured items are scheduled for processing in the tools based on the item health metrics and the tool health metrics. A manufacturing system includes a plurality of tools for processing a plurality of manufactured items in a process flow, an item health monitor, a tool health monitor, and a scheduling server. The item health monitor is configured to determine item health metrics for at least a subset of the plurality of manufactured items. The tool health monitor is configured to determine tool health metrics for at least a subset of the plurality of tools. The scheduling server is configured to schedule the manufactured items for processing in the tools based on the item health metrics and the tool health metrics.